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BLM-Alaska Open File Report 2

June 1983

*Archaeological Investigations in the
DeLong Mountains
Northwest Alaska, 1979 - 1980*

by Howard L. Smith



Bureau of Land Management

Alaska

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INTRODUCTION

Bureau of Land Management personnel have conducted archaeological inventory in the De Long Mountains of northwest Alaska during brief periods of 1979 and 1980. Inventory was performed in the Wulik River drainage on August 26, 27, and 28, 1979, and from August 22 to 29, 1980, in response to mineral exploration and development activities being carried out in the area.

Under the requirements of Section 603 of the Federal Land Policy and Management Act of 1976, which was in effect at the time of both surveys, the Bureau had the responsibility to stipulate the manner in which mining activities were carried out "...so as to prevent unnecessary or undue degradation of the lands and their resources or to afford environmental protection." Archaeological survey was intended to help discharge the Bureau's responsibility under this law and The National Historic Preservation Act of 1966.

BACKGROUND AND PREVIOUS WORK

The area of mineral activity is located on the southern slope of the De Long Mountains and includes portions of both the Wulik and Kivalina River drainages (Figure 1). The De Long Mountains consist of rugged glaciated ridges rising to between 4,000 and 4,900 feet, with local relief of 1,500 to 3,000 feet. The area is drained by streams flowing south and west to the Noatak River and Chukchi Sea, and north to the Arctic Ocean. Lakes and glaciers are not present and the area is underlain by continuous permafrost (Wahrhaftig 1965:20).

Moist tundra is the predominant vegetation type in the area, consisting of such species as dwarf birch, netted willow, sedges, labrador tea, saxifrages, cotton grass, mosses, and lichens. Scattered areas of alpine tundra, typified by willows, dwarf birch, crowberry, alpine blueberry, bearberry, saxifrages, lichens, and mosses, occurs in more elevated locations and on well-drained rocky ridges (Selkregg n.d.:130-134). A high brush community, predominantly composed of alders and willows, occurs along streams, where occasional stands of cottonwood also occur.

The Wulik area supports resident populations of several important wildlife species. Moose are present, and although they are recent arrivals in historic times, may have been present and significant prehistorically (Hall 1973). The area sees seasonal concentrations of caribou when portions of the northwest Arctic herd migrate through in the fall and spring. Dall sheep occur in the more rugged country near the headwaters of the Wulik.

A significant population of Arctic char utilizes the Wulik and Kivalina Rivers. They can be taken in relatively large numbers during spring and fall migrations, and are an important subsistence item for the current residents of Kivalina.

The first indications of potential mineral values in the area occurred as a result of reconnaissance mapping of the area in 1955 and 1968 by the U.S. Geological Survey. At this time mineral staining was noted on a number of creeks in the area, and samples were collected from two of these streams. Analysis of these samples indicated that one of the localities contained concentrations of lead and zinc of potential economic significance (Tailleur 1970). Subsequent work by the U.S. Bureau of Mines located and mapped the source of this mineralization, and revealed significant quantities of lead, zinc, silver, and barite (Plahuta 1978).

This deposit, on a tributary to Ikalukrok Creek, was located on lands withdrawn from mineral entry under Section 17(d)(2) of the Alaska Native Claims Settlement Act, but beginning in 1975 claims were staked on adjacent lands open to mineral activity. Since then, two companies, GCO Minerals and Cominco American, have located approximately 16,000 claims covering an area of between 200,000 and 300,000 acres. The area covered by these claims is shown in Figure 1.

Prior to cursory survey in 1979, no archaeological work had been done in the Wulik drainage. Ethnographic data and results of work in adjacent areas, however, indicated a strong possibility that the area had been heavily utilized during aboriginal times. Burch (1976:7) reports that the Wulik and Kivalina Rivers were used as travel routes during the 19th century, connecting the Wulik drainage with the Arctic coast by way of the Kukpowruk River. Both are reported to have been easily travelled. The Alaska Heritage Resource Survey lists over 100 sites along the Kukpowruk River, the result of survey conducted by Solecki (1950; 1951). Assuming that at least some of these resulted from travel through the Brooks Range, it is only reasonable to conclude that related sites are located on the Wulik and Kivalina Rivers.

Thus, despite the total lack of information on the area, the Wulik was judged to have significant potential for containing archaeological sites from several periods of Alaskan prehistory.

1979 SURVEY

1979 inventory was conducted in response to proposals from GCO Minerals to construct an all-weather gravel airstrip and road in the vicinity of the camp from which their exploratory operations are

conducted. Approximately 10 work days were expended and two alternative airstrip locations, the primary borrow area, and alternative routes for roads connecting the airstrips and camp were surveyed for archaeological sites. Spot checks were made on the route of a winter overland move of heavy equipment, and a location currently being used as a landing strip was also surveyed. This work resulted in the discovery of twelve prehistoric sites. Figure 2 shows the approximate limits of the 1979 survey and locations of the sites recorded from that effort.

All of the 1979 sites were surface lithic scatters, varying from a few flakes covering an area only three feet on a side to a series of five flake concentrations distributed over an area of 450 by 450 feet. Sites were located on terraces adjacent to the Wulik, on prominent ridges and other topographic features up to 1 1/2 miles away from the river, and on the elevated margins of the small open valley in which the GCO "Lik" camp is located. (This small valley, which runs east-west between the west and east forks of the Wulik, is referred to by Cominco personnel as the "Su Valley," after one of their claim groups). One large lithic site (DEL-130) was also found along a major tributary of the Wulik.

Sites adjacent to the Wulik were almost all located on the higher of the two discontinuous terraces that run along both sides of the river valley. The one exception to this was the small site DEL-122, which may very well have been redeposited from an adjacent site on the higher terrace.

Raw materials observed included gray, green, tan, red, and black chert; outcrops of which were frequently noted during the course of the survey. Artifacts recovered include four large, crudely-flaked bifaces; three large, thin, bifacially flaked end or side blades; one small, discoidal biface; one keeled endscraper or flakeknife; fragments of two small end or side blades; and the basal portion of a stemmed projectile point. Several of the bifaces and fragments appear to derive from Choris or Choris related cultures, and the endscraper/flakeknife may suggest Denbigh affiliations. Other material has little or no diagnostic value. Figure 3 shows representative artifacts from the 1979 survey, and Appendix A contains descriptions of the sites recorded during that year's work.

1980 SURVEY

As mentioned above, work done in 1979 was primarily in response to specific proposals for ground-disturbing activities, and largely ignored potential impacts from exploration activities such as drilling and geophysical surveys. Activities of this sort present a particularly difficult problem in the management of cultural resources because

potential impacts associated with them are largely indirect. Little or no significant surface disturbance is involved in surface exploration or even exploratory drilling done with helicopter-borne drill rigs. In an undeveloped area such as the Wulik, however, the potential for significant loss of information from illegal collection or inadvertent disturbance of artifacts is clear.

During 1979 and 1980, mineral exploration in the Wulik area had involved as many as 55 to 60 field personnel plus 35 to 40 support personnel per year--a number that is likely to increase as exploration proceeds. Results of the 1979 inventory demonstrated that the sites could be densely distributed along the river and that all of the sites discovered were in locations that had been visited by field personnel associated with exploration activities. Consequently, we became concerned about possible significant indirect impacts, as well as those associated with construction per se.

As required by regulations in 36 CFR 800.4(a)(1), the Alaska State Historic Preservation Officer was contacted in April 1980 to obtain his recommendation concerning the type and extent of inventory that should be conducted in response to exploration activities. In a response dated May 12, the SHPO's office recommended "...that minimally a reconnaissance level survey should be conducted and areas containing larger more complex sites or concentrations of sites be given more intensive attention."

With this recommendation for a guideline, inventory in 1980 was designed to accomplish three goals:

1. To obtain a more definite idea of the areas within the Wulik and Kivalina drainages that are of primary interest to mineral companies.
2. To better define the kinds and probabilities of impact to be reasonably expected from exploration activities.
3. To broaden the base of information concerning site location, nature, and distribution.

With this information, it was hoped that specific recommendations concerning type and extent of inventory could be made to companies working in the area, who would be required to conduct such inventories as a condition of approval of their plans of operation under regulation in 43 CFR 3802.1.

The initial step in the inventory involved an overflight of the general area by helicopter, covering sections of the east and west forks of the Wulik, the Su Valley, and the Ikalukrok Creek drainage. During the overflight, areas judged to have high potential for archaeological sites were marked on 1:63,360 scale maps. Next, personnel from the two

companies were interviewed to determine those areas most likely to be impacted in the near future. Five areas were then selected for on-the-ground investigation so as to broaden areal coverage and to provide data from topographically different locations. Areas selected for survey were as follows:

1. The east fork of the Wulik, from just above the confluence with the west fork to immediately above Lik Camp.
2. The Su Valley.
3. The ridge to the east of the Wulik between the GCO camp and the Cominco camp.
4. The west fork of the Wulik above the confluence with the stream draining the Su Valley.
5. The Ikalukrok Creek valley in the vicinity of Red Dog strip.

Within these areas, transects were walked so as to maximize the number of promising site locations. That is, transects tended to follow an irregular course from one raised topographic feature to another. No subsurface testing was conducted, and no collection of surface artifacts was made. In situ photographs and scale drawings of complete and fragmentary artifacts were made in the field as part of the recordation of each site.

Problems resulting from adverse weather conditions and difficulties in arranging transportation from the area made it impossible to conduct survey in the vicinity of Red Dog strip, but transects were completed in all other areas. Transects completed on the ground include a ca. seven mile stretch of the east fork of the Wulik, from about three miles above the confluence with the west fork to just below the Cominco camp; a four mile transect of the Su Valley west of the divide; approximately three miles on the high ground northeast of Cominco's camp; and a two mile section of the left bank of the west fork. Figure 4 shows the transects covered and the approximate locations of sites discovered in 1980.

Nine prehistoric sites and one historic site were discovered in 1980, bringing the total of known sites in the area to 21. Three of the 1980 sites were located along the east fork, two in the Su Valley, two on the ridge northeast of Cominco's camp, and two on the west fork.

Sites discovered in 1980 vary in size from a small three foot flake scatter to one measuring 40 by 200 feet. All are located on prominent topographic features such as terraces, knobs, ridges, and hills. Sites were located between 500 feet and one mile from the nearest major stream, and between 50 and 700 feet above the level of the adjacent river. Sites near the river are all located on the highest of two or

three discontinuous terraces that run along the river valley. Frequently, sites are situated on exposed outcrops of shale or chert, which are common in the area.

Raw materials observed include gray, red, black, green, and white chert. Finished artifacts were most often large, rather crudely flaked bifaces of little diagnostic value. One fragment of what may be a large side blade was noted at DEL-137. This artifact may be indicative of Choris-Norton-Ipiutak affiliations, although the flaking technique appeared somewhat cruder than is usual.

Complete or fragmentary artifacts noted include four large biface fragments, one small biface fragment, one unifacial tool, a fragment of a large side blade, and a fragment of a small side or end blade. Sketches of artifacts from the 1980 survey are shown in Figure 3.

Numerous outcrops of chert were observed during the survey, consisting of material that occurs in bands within softer shales. This "ribbon" chert is apparently of limited use for flaking, as it displays a strong tendency to fracture in parallel planes, rather than in a conchoidal fashion. While some of the naturally occurring cherts may have been used by aboriginal inhabitants of the Wulik, most of the material noted at sites appeared to be of much better quality. This may be a result of careful selection of raw materials from local sources, or may indicate that the primary source of chert is other than the easily observed outcrops that are common in the area. The latter alternative is supported by the fact that most of the 1980 sites that occurred on chert outcrops consisted of raw materials that were markedly different from the naturally occurring rock (e.g., gray chert flakes on an outcrop of black chert). Furthermore, few decortication flakes were noted at any of the sites, indicating that raw material was probably processed elsewhere prior to being transported to the final flaking location.

CONCLUSIONS AND RECOMMENDATIONS

1. Results of inventory in the Wulik area continue to support the original evaluation of the area's archaeological potential. A total of twenty-one sites have been discovered as a result of no more than 16 working days of inventory, clearly indicating that site distribution is relatively dense.
2. The densest concentration of sites discovered to date is in the broad, open area where the Su Valley connects to the valley of the east fork of the Wulik. Nine sites are now known to occur in this general area, including a concentration of six sites in a one mile stretch along the right bank of the Wulik. More sites are undoubtedly present in this area.

3. Sites near the river are almost entirely located on the highest of two or three discontinuous terraces that occur along both sides of the river valley.
4. Where these terraces are not present, sites still appear to be located well above and away from the river. Sites were found as far away as 1 1/2 miles and as much as 700 feet above the level of the river bed.
5. Investigations to date have not revealed any indication of large habitation sites. All sites appear to be the result of relatively short-term occupations, although the size and extent of sites such as DEL-123; 130 and 137 would seem to indicate that certain locations were probably utilized with some frequency. Little or no evidence of quarrying activity has been encountered, and it therefore appears that aboriginal use of the Wulik drainage was primarily for the purpose of exploitation of the fish and game resources of the area. The potential of these sites for contributing important information on patterns of such resource utilization is high.
6. Recent passage of the Alaska National Interest Lands Conservation Act, which exempts public lands in Alaska from wilderness provisions contained in Section 603 of the Federal Land Policy and Management Act, and publication of final regulations for surface management of public lands under the mining laws (43 CFR 3809), remove any authority the Bureau had to require inventory in advance of exploration activities. 43 CFR 3809.1-4 requires Bureau approval for mining activities only if more than five acres will be disturbed. Because little or no surface disturbance is created by surface mineral survey or exploratory drilling as is currently being conducted, no Bureau license or permit is required and there is therefore no undertaking that requires compliance with the National Historic Preservation Act and 36 CFR 800.
7. Activities associated with the exploration program, such as camps and airstrips, have a clear and undeniable potential for direct impacts to cultural resources, even when less than five acres will be disturbed. Of the three areas utilized to date for camps and/or landing strips, all have adversely affected archaeological sites. Site DEL-125, located just outside of Lik camp, was impacted by heavy equipment; a small flake scatter (DEL-140) which had undoubtedly been seriously disturbed by human traffic was found within the Cominco camp; and the large and important site at Red Dog strip (DEL-130) has for all practical purposes been completely destroyed. Unfortunately, while 43 CFR 3809.2-2 prohibits an operator from knowingly creating such impacts, the Bureau has no authority to require inventory prior to activities as long as they will disturb less than five acres. Consequently,

there is little chance that such impacts can be avoided in the future.

8. The potential for serious conflicts between mineral exploration and development and cultural resource values in the Wulik is high. As long as Federal jurisdiction continues over mineral claims in the region, these conflicts could be a source of difficulties for both land manager and industry, as they may well result in sudden and unanticipated workloads for the Bureau and unnecessary delays in the operations of mineral companies. Consequently, it continues to be to the benefit of all concerned to inventory the area for cultural resources. If the location and nature of archaeological sites are known well in advance of planned operations, unanticipated conflicts and the attendant difficulties can be avoided. Therefore, it is strongly recommended that inventory efforts continue and be expanded. To the extent that budget and manpower restraints permit, the Bureau should continue to inventory Federal claims in the Wulik area, making information available to mineral companies so that conflicts can be anticipated. Furthermore, mineral companies should seriously consider financing inventory efforts well before plans for development activities have become concrete.

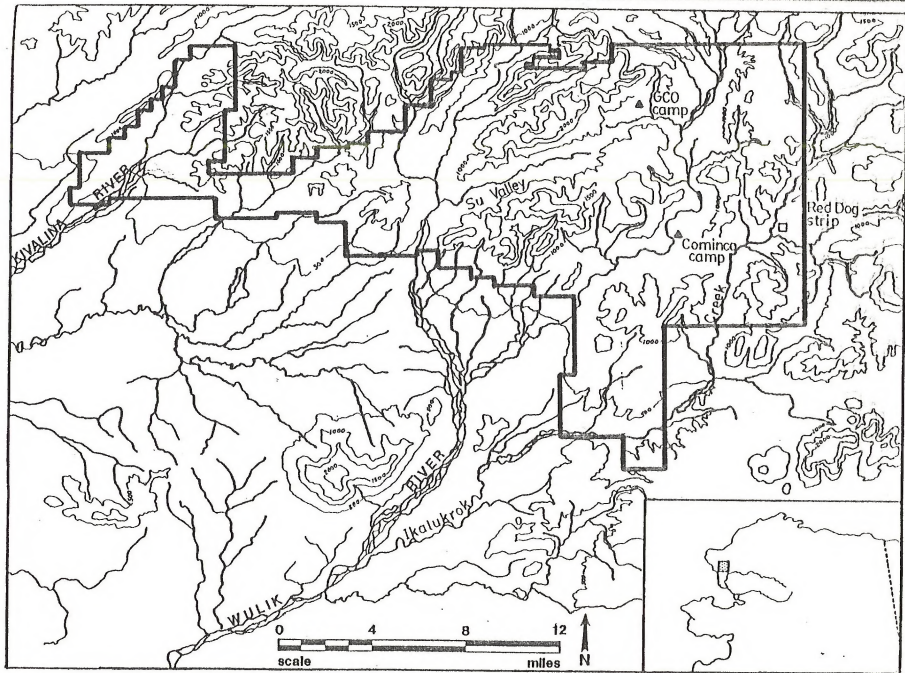


Figure 1 - Map showing extent of area in unpatented mining claims and several features referenced in text.

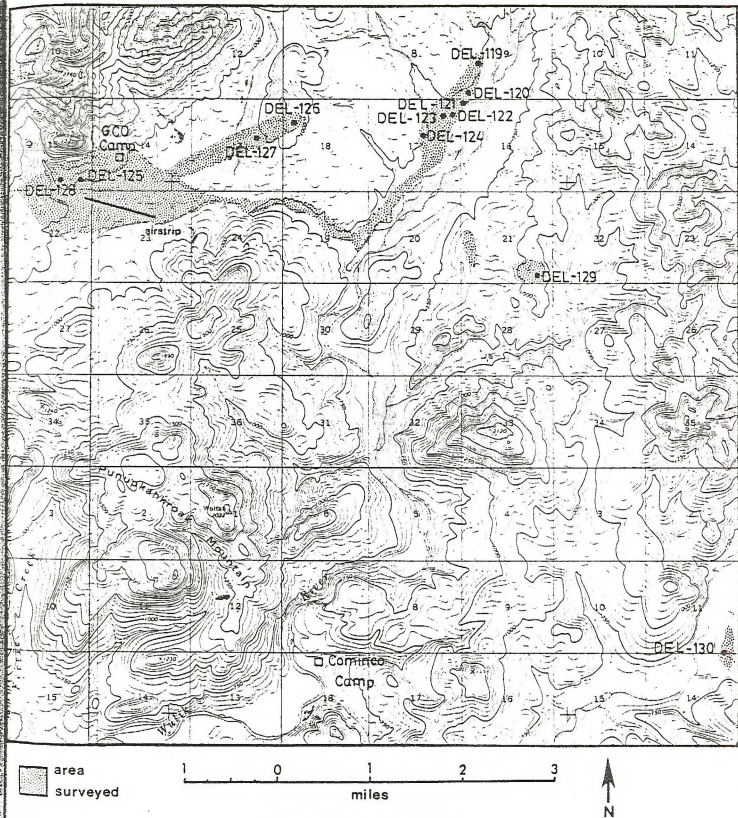


Figure 2 - 1979 survey, showing area inventoried and locations of discovered sites.

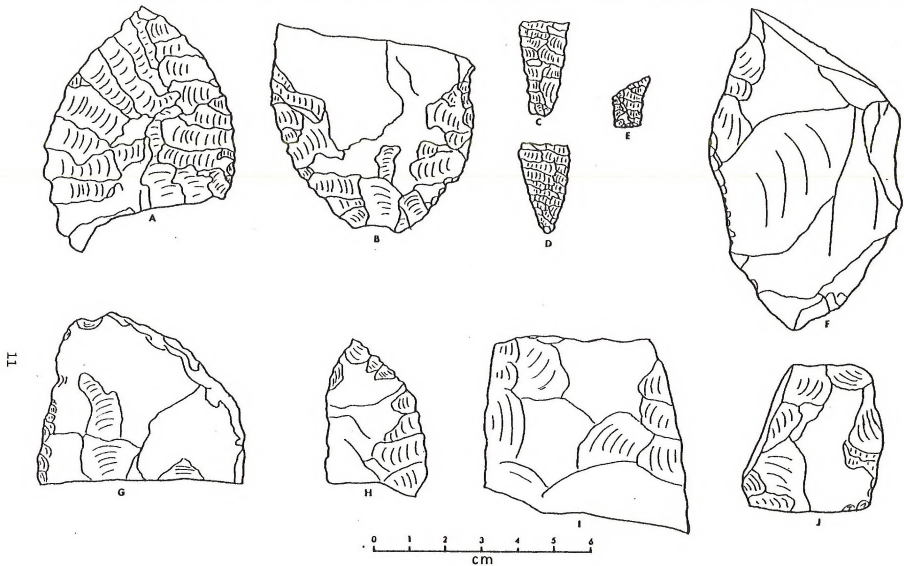


Figure 3 - Artifacts from De Long Mountains Surveys. a: large Choris biface from DEL-120; b: biface from DEL-128; c-e: Choris end/side blades from DEL-128; f: large biface from DEL-127; g: large biface from DEL-135; h: Choris-like end or side blade from DEL-137; i-j: bifaces from DEL-138.

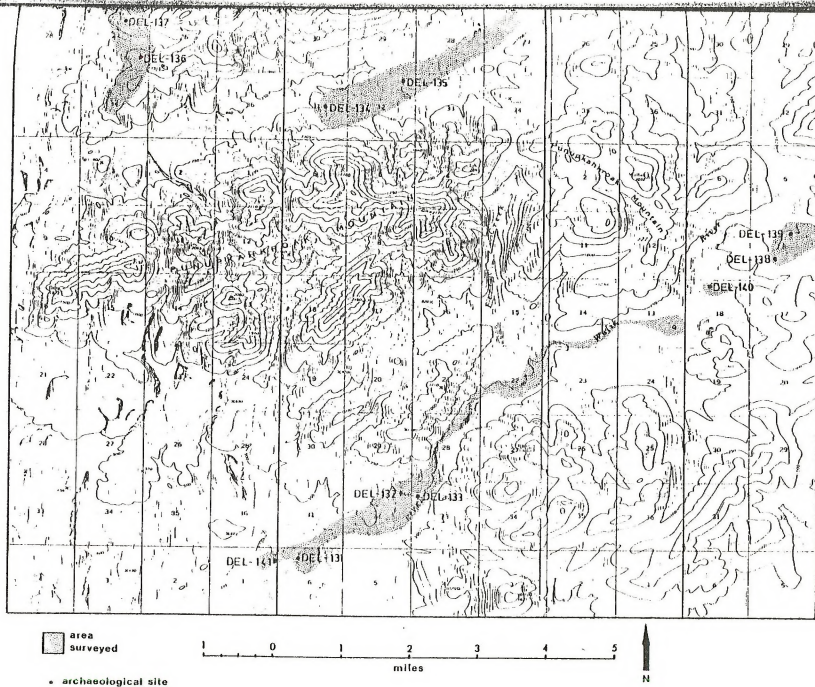


Figure 4 - 1980 survey, showing areas inventoried and locations of archaeological sites discovered.

Appendix A

Sites From 1979 Survey

Site Number: DEL-119

Location: NW 1/4 SW 1/4 Sec. 9, T. 32 N., R. 19 W., Kateel River
Meridian

Map Reference: De Long Mountains (A-2) 1:63,360

Description: The site covers an area of approximately 100 by 50 feet, and consists of about 12 flakes of gray, green, and tan chert. Site is located at slightly more than 750 feet in elevation, on the higher of two terraces overlooking the current floodplain of the Wulik River. This location provides a good view to the north and east. DEL-119 is located on an outcrop of shale where some naturally-occurring chert nodules are visible. Vegetation on the site consists of bearberry (*Arctostaphylos uva-ursi*), *Phlox sibirica*, *Dryas*, willows, and scattered grasses. The area surrounding the site consists of tussock tundra. No complete or fragmentary artifacts were observed.

Site Number: DEL-120

Location: SW 1/4 SW 1/4 Sec. 9, T. 32 N., R. 19 W., Kateel River
Meridian

Map Reference: De Long Mountains (A-2) 1:63,360

Description: Site is located on the same terrace as DEL-119, overlooking the Wulik with a view to the north and east. Vegetation on the site is similar to that at DEL-119, and the site is also located on a relatively bare outcrop of shale. Site elevation is slightly less than 750 feet. A single fragment of a large biface was recovered. This artifact weights 24.15 grams, measures 5.5 cm. by 5.3 cm., and is composed of dark grey chert. It is oval in shape and lenticular in cross-section and is thin and well flaked. The biface is probably indicative of Choris origins.

Site Number: DEL-121

Location: NW 1/4 NW 1/4 Sec. 16, T. 32 N., R. 19 W., Kateel River
Meridian

Map Reference: De Long Mountains (A-2) 1:63,360

Description: Site is located approximately 1,000 yards south of DEL-120, on the same terrace. It consists of a flake scatter covering an area of about 50 by 50 feet, with a view toward the north and east. Site elevation is just less than 750 feet, and vegetation is similar to that at DEL-119 and DEL-120, consisting of bearberry, *Phlox*, *Dryas*,

willows, and grasses. Site consists of six flakes of silicified siltstone and gray, green, and dark gray chert. One of these flakes displays rough bifacial flaking along one margin. A large, tear drop shaped biface of silicified siltstone was also recovered. This artifact weighs 75.75 grams and measures 11.5 by 6.2 cm. It is lenticular in cross-section, and has been frost-spalled into three separate pieces. DEL-121 was completely collected.

Site Number: DEL-122

Location: NE 1/4 NE 1/4 Sec. 17, T. 32 N., R. 19 W., Kateel River Meridian

Map Reference: De Long Mountains (A-2) 1:63,360

Description: DEL-122 is located on the lower of two terraces, at a point where this terrace juts out into the Wulik floodplain. The site consists of a small flake scatter situated atop a frost boil and covering an area of only five by five feet. No complete or fragmentary artifacts were observed. The site could easily represent redeposition of material from DEL-123, which is located on the higher terrace immediately above DEL-122. One small test pit indicated a soil depth of about 18 inches at site location. Site elevation is approximately 725 feet.

Site Number: DEL-123

Location: NE 1/4 NE 1/4 Sec. 17, T. 32 N., R. 19 W., Kateel River Meridian

Map Reference: De Long Mountains (A-2) 1:63,360

Description: Site is located on an outcrop of shale on the higher of two terraces, and immediately above DEL-122. Site covers an area of about 450 by 450 feet, and consists of five distinct flake scatters. Site is located just to the north of a small tributary of the Wulik, at an elevation of between 700 and 750 feet, and affords a good view toward the north and east. Several artifacts and fragments were recovered from DEL-123, including two bifaces, two biface fragments, a unifacially flaked scraper, and what may be a portion of a blade core. Raw materials observed included gray, red, white, and mottled gray and brown cherts.

One large biface, made of mottled gray and brown chert, weighs 60 grams and measures 7.1 by 5.4 cm. It is sub-rectangular in shape and roughly lenticular in cross-section. A second complete biface is smaller, measuring 4.5 by 3.4 cms., and weighing 14.1 grams. It is discoidal in

shape, lenticular in cross-section and composed of gray chert. One biface fragment made of dark gray chert, appears to be the rounded end of an oval shaped tool. It measures 4.5 by 2.5 cms., and weighs 16.2 grams. It exhibits a piano-convex cross-section. A second biface fragment, which appears to be approximately half of an oval shaped tool is much larger. It weighs 44.4 grams and measures 5.0 by 4.8 cms. It has a piano-convex cross-section and is composed of dark gray chert. The unifacial tool is made from a flake on which considerable cortex surface can still be seen and is of dark gray chert. It measures 6.6 by 3.1 cms., weighs 22.0 grams, and is football-shaped with a piano-convex cross-section. It exhibits a marked curve in longitudinal cross-section. One flake of red chert displays a series of fine parallel flake scars resulting from the removal of several small blades.

Site Number: DEL-124

Location: SW 1/4 NE 1/4 Sec. 17, T. 32 N., R. 19 W., Kateel River Meridian

Map Reference: De Long Mountains (A-2) 1:63,360

Description: Site is located on the higher of two terraces and just to the south of a small tributary to the Wulik. It lies at an elevation of about 750 feet, and consists of flakes of gray, green, and tan chert scattered over an area of 100 by 300 feet. Site location provides a view to the north and east. Vegetation is similar to that at adjacent sites. No artifacts were noted.

Site Number: DEL-125

Location: SE 1/4 SE 1/4 Sec. 15, T. 32 N., R. 20 W., Kateel River Meridian

Map Reference: De Long Mountains (A-3) 1:63,360

Description: Site is located in a low saddle near the tip of a north-south running ridge that connects to a bench that runs behind Lik camp and forms the northern margin of the Su Valley. The site is at an elevation of about 1,000 feet and is situated about 1/5 of a mile north of a small unnamed creek. Site area is largely bare of vegetation, with only scattered moss and lichens occurring on the gray chert pavement that makes up the ridge surface. The site consists of 37 gray to dark gray chert flakes scattered over an area of 20 by 20 feet. Site location provides a view across the Su Valley toward the south. DEL-125 was completely collected. One large, crudely-flaked biface was collected. It is composed of dark gray chert, weighs 129 grams, and measures 7.5 by 5.0 cms. It is over two cms. thick, roughly oval in shape, and has a

lenticular cross-section.

Site Number: DEL-126

Location: NW 1/4 NW 1/4 Sec. 18, T. 32 N., R. 19 W., Kateel River
Meridian

Map Reference: De Long Mountains (A-2) 1:63,360

Description: Site consists of 15-20 flakes scattered over an area of about 20 feet in diameter, located on a prominent hill near the eastern end of the Su Valley. This location provides a view of the open area to the south. There is little soil development on the site, and vegetation consists of sparse lichens, dwarf birch, and willow. Raw materials observed include gray and red cherts. Elevation of the site is approximately 1,000 feet. No artifacts were observed.

Site Number: DEL-127

Location: SW 1/4 NE 1/4 Sec. 13, T. 32 N., R. 20 W., Kateel River
Meridian

Map Reference: De Long Mountains (A-2) 1:63,360

Description: Site is located on the southwest slope of the same hill as DEL-126, at an elevation of about 950 feet. DEL-127 is situated about 1/5 of a mile east of a small tributary of the Wulik, and commands a view to the southwest. The site consists of a dense scatter of 75-100 flakes in an area about three by seven feet. Raw materials consist of gray and red cherts. One large, crudely-flaked biface fragment of gray/brown chert was recovered. It weighs 113.5 grams, measures 7.5 by 5.3 cms., has a lenticular cross-section, and is roughly oval in shape. Vegetation at DEL-127 is similar to that at DEL-126, which is located about 2,500 feet to the northeast.

Site Number: DEL-128

Location: SW 1/4 SE 1/4 Sec. 15, T. 32 N., R. 20 W., Kateel River
Meridian

Map Reference: De Long Mountains (A-3) 1:63,360

Description: Site is located about 1/4-mile to the west of DEL-125, on the same bench along the northern margin of the Su Valley. Site lies immediately to the east of a small unnamed creek, at an elevation of about 1,050 feet. This location commands a view of the valley to the

south and west. The site consists of a surface scatter of gray and red chert flakes distributed over an area of about 40 by 40 feet. Vegetation on the site includes dwarf birch, Dryas, and scattered grasses. Soil deposition at the site is characterized by a layer of 4.5 cms. of organic material overlying 10-12 cms. of typical brown arctic soil. Artifacts recovered include a fragment of a large thin biface, two fragments of end or sideblades, and the basal portion of a stemmed projectile point. The large biface appears to be about half of an oval shaped tool, is composed of gray chert, and has a lenticular cross-section. It weighs 25.8 grams, and measures 5.0 by 5.7 cms. One of the fragmentary blades is the tip of an end or side blade of gray chert. It weighs 1.4 grams, measures 2.2 by 1.3 cms., and displays fine, oblique transverse flaking typical of Choris-Norton-Ipiutak artifacts. The other blade fragment appears to be the basal portion of an end blade. It also is composed of gray chert and displays flaking similar to that of the other blade fragment. It weighs 1.2 grams, and measures 2.5 by 1.1 cms. The projectile point fragment is the basal portion of a stemmed point of gray chert. It weighs 0.6 grams and measures 1.0 by 0.8 cms. Flaking technique is similar to that of the two blade fragments.

Site Number: DEL-129

Location: SE 1/4 SE 1/4 Sec. 21, T. 32 N., R. 19 W., Kateel River Meridian

Map Reference: De Long Mountains (A-2) 1:63,360

Description: Site is located on the highest point of a north-south trending ridge about two miles east of the Wulik River, at an elevation of over 1,050 feet. Flakes of gray, black, white, and red chert are scattered over an area about 35 by 40 feet surrounding a small prominent knob atop the ridge. View from the site is primarily toward the north and west. No artifacts were noted.

Site Number: DEL-130

Location: NE 1/4 NE 1/4 Sec. 14, and SE 1/4 SE 1/4 Sec. 11, T. 31 N., R. 19 W., Kateel River Meridian

Map Reference: De Long Mountains (A-2) 1:63,360

Description: The site is located on a level, well drained terrace along the eastern edge of the small valley drained by Ikalukrok Creek. Site is near the confluence of Ikalukrok Creek and an unnamed creek draining the area to the east and commands an excellent view of the surrounding terrain in all directions. Vegetation on the terrace includes dwarf birch, bearberry, blueberries, moss, lichens, and willows.

The site covers an area of about 300 by 900 feet, and consists of flakes of black, red, and gray chert, including decortication flakes.

The area has been used extensively as a camp and primary supply point for mineral activity in the area, and the site has been severely impacted. The terrace has been used as a landing strip, and the southern portion of the area denuded by this use includes a portion of the site. Deep ruts cross a portion of the site, and an almost total lack of finished artifacts in a site of this size probably indicates that considerable illegal collection has occurred. Only one artifact was recovered from this site. This is a keeled endscraper or flakeknife possibly indicative of Denbigh affiliations. It is composed of tan/green chert and measures 8.1 by 4.4 cms. and weighs 73.7 grams. Site elevation is 700 feet.

Appendix B

Sites From 1980 Survey

Site Number: DEL-131

Location: NE 1/4 NW 1/4 Sec. 6, T. 30 N., R. 20 W., Kateel River
Meridian

Map Reference: De Long Mountains (A-3) 1:63,360

Description: Site consists of a surface scatter of gray, red, black, and white chert flakes located along the edge of the third and highest terrace on the right bank of the Wulik River. Flakes are scattered over a distance of approximately 500 feet along the edge of the terrace. The site is located about 1/4-mile north of the Wulik, at an elevation of 400 feet. Vegetation in the surrounding area is tussock tundra, the site area itself is largely bare of vegetation. No artifacts were noted.

Site Number: DEL-132

Location: NE 1/4 NE 1/4 Sec. 32, T. 31 N., R. 20 W., Kateel River
Meridian

Map Reference: De Long Mountains (A-3) 1:63,360

Description: The site is located on a bare shale outcrop approximately 1,000 feet west of DEL-133. Site consists of gray, black, and white chert flakes covering an area of about 50 feet in diameter. Several small clusters of quarter-sized flakes were noted, but no finished artifacts were observed. Site elevation is about 500 feet and the view from the site is toward the south and west.

Site Number: DEL-133

Location: SW 1/4 NW 1/4 Sec. 33, T. 31 N., R. 20 W., Kateel River
Meridian

Map Reference: De Long Mountains (A-3) 1:63,360

Description: This site consists of a surface scatter of gray and black chert flakes covering an area of about 30 by 30 feet. It is located on a prominent bare knob of weathered shale situated near the bottom end of a short canyon through which the Wulik runs. Three or four dense clusters of flakes were present, but no finished artifacts were noted.

Site Number: DEL-134

Location: NW 1/4 SE 1/4 Sec. 31, T. 32 N., R. 20 W., Kateel River
Meridian

Map Reference: De Long Mountains (A-3) 1:63,360

Description: Site consists of a small lithic scatter of no more than ten to fifteen flakes located on the second terrace above the floor of the Su Valley. The site lies approximately 1/4-mile south of the creek draining the valley, and covers an area of ten to twelve feet in diameter atop a bare outcrop of weathered gray stone interspersed with cobbles of gray chert. Site elevation is 850 feet. Vegetation on the site includes dwarf birch, lichen, and knik-knik. No artifacts were noted, but one flake may show retouch flaking along one side and face. Site area provides a good view of the surrounding area to the north and west.

Site Number: DEL-135

Location: NE 1/4 NE 1/4 Sec. 32, T. 32 N., R. 20 W., Kateel River
Meridian

Map Reference: De Long Mountains (A-3) 1:63,360

Description: Site is located on an isolated outcrop of black chert that lies near the bottom of the valley floor about 1/8-mile south of the main creek draining the Su Valley. Elevation of site is about 850 feet. Site consists of a surface scatter of lithics covering an area of about 50 by 25 feet, with the major concentration of material near the eastern end of the area. Vegetation of the site includes bearberry, Dryas, lichen, moss, saxifrage, and crowberry. A dense concentration of translucent buff colored chert flakes and two small (5-7 cms.) bifaces of the same material are located toward the eastern end of the site. Also observed was a fragment of a large, apparently semi-lunate biface composed of mottled blue and brown chert and a unifacial tool of gray chert.

Site Number: DEL-136

Location: SE 1/4 SE 1/4 Sec. 27, T. 32 N., R. 21 W., Kateel River
Meridian

Map Reference: De Long Mountains (A-3) 1:63,360

Description: Site is located on an east-west running ridge about one mile east of the West Fork of the Wulik River. Site consists of gray chert flakes scattered along the ridge top for a distance of about 100 feet. Vegetation on the site includes dwarf birch, willow, blueberry, and lichens. Site elevation is ca. 1,200 feet and the view from the site is toward the west. No artifacts were observed.

Site Number: DEL-137

Location: NW 1/4 NE 1/4 Sec. 27, T. 32 N., R. 21 W., Kateel River
Meridian

Map Reference: De Long Mountains (A-3) 1:63,360

Description: A large, dense surface lithic site located on the first east-west running ridge north of DEL-136 and immediately south of a prominent notch carved by the West Fork in a ridge of resistant material. Lithics include gray, blue/gray, brown, green, and mottled brown and blue chert flakes scattered for a distance of 150 feet along the top of the ridge. The ridge is composed of black chert. Vegetation includes willows, Dryas, blueberry, saxifrage, dwarf birch, and lichens, and the elevation of the site is about 950 feet.

View from the site is toward the south and west. Many of the large flakes at the site are decortication flakes. Several separate concentrations of flakkes were noted, and a fragment of a blue/gray chert side blade was observed. This artifact appears to be of Choris origins.

Site Number: DEL-138

Location: NE 1/4 SW 1/4 Sec. 8, T. 31 N., R. 19 W., Kateel River
Meridian

Map Reference: De Long Mountains (A-2) 1:63,360

Description: A small surface lithic site consisting of three flakes and two biface fragments, located on the southern side of an outcrop of weathered shale on an east-west trending ridge to the east of Cominco American's camp. Site is located about 1/2-mile from the Wulik River, at an elevation of 850 feet. It is located near the upstream end of a small narrow canyon, and approximately 275 feet above the level of the river. Vegetation on the site includes bearberry, blueberry, crowberry, and lichen. All lithics are composed of dark gray chert. Both biface fragments are rectangular in shape, the smaller measures four by four cms., and the larger measures five by five cms.

Site Number: DEL-139

Location: SW 1/4 NE 1/4 Sec. 8, T. 31 N., R. 19 W., Kateel River
Meridian

Map Reference: De Long Mountains (A-2) 1:63,360

Description: The site consists of gray, black, and white chert flakes widely scattered along the end of a high east-west trending ridge just upstream from a short, narrow canyon of the Wulik. Material was observed in unvegetated patches along the north side of the ridge, in an area of numerous solifluction lobes. Outcrops of dark gray shale are common along the ridge, which terminates at the river in a steep talus slope of the same material. Cultural material was observed for a distance of approximately 200 feet, along only the higher portion of the ridge, and not on a lower terrace near the river. Vegetation on the site includes Dryas, willow, dwarf birch, blueberry, and lichen.

Cultural material at the site includes large crude quarry blanks and flake cores of grainy white chert, which are located primarily toward the higher end of the site and a dense scatter of gray chert flakes and two small blade fragments of gray and black chert near the lower end of the site. Elevation of the site is 750 to 850 feet and the view is primarily toward the north.

Site Number: DEL-140

Location: NE 1/4 NW 1/4 Sec. 18, T. 31 N., R. 19 W., Kateel River Meridian

Map Reference: De Long Mountains (A-2) 1:63,360

Description: The site consists of a small lithic scatter of gray and white chert flakes located within the camp area currently being used by Cominco American. Flakes cover an area of about 30 feet in diameter and are located just to the north of the cook tent. No artifacts were observed. It is highly likely that the site has been severely disturbed as a result of heavy human use of the area. Site setting consists of an exposed gravel terrace on the left bank of the Wulik, adjacent to a small tributary stream. The area is currently bare of vegetation, partly because of the presence of the camp, but it is likely that the area was largely unvegetated in its natural state. Surrounding vegetation includes willow, sedges, and dwarf birch. Elevation of the site is about 550 feet.

Site Number: DEL-141

Location: NE 1/4 NE 1/4 Sec. 1, T. 30 N., R. 21 W., Kateel River Meridian

Map Reference: De Long Mountains (A-3) 1:63,360

Description: The site consists of the remains of a pole and wire corral located in a thick grove of cottonwood trees near the confluence

of several small streams with the Wulik. Six to eight courses of poles were observed, with sections of the corral still attached to trees with galvanized barbed wire and standard round nails. Sections of the corral have collapsed, leaving courses of horizontal poles on the ground. No evidence of wings leading into the corral was observed. Possibly this site relates to reindeer herding activities, presumably associated with one of the herds established in the Kivalina area. Herding took place from Kivalina during the period between 1905 and 1959 (Stern et al. 1977:47-48).

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